

What is claimed is:

1. An estimation system for harness processing, comprising:  
a storage unit which is constituted by a memory medium or  
memory elements, and which stores an estimation function for  
5 calculating an estimation of a harness based on a designated  
processing condition for processing the harness;  
an input unit which receives input of information; and  
a control circuit which calculates the estimation of the harness  
based on the estimation function read out from said storage unit and  
10 the processing condition designated from said input unit.
2. The estimation system for harness processing according to  
claim 1, comprising a communication unit which receives the  
estimation function and stores the received estimation function in  
said storage unit.
- 15 3. The estimation system for harness processing according to  
claim 1, wherein said input unit comprises a communication unit  
which receives the processing condition from an external terminal  
and provides the received processing condition to said control circuit,  
and sends an estimation result for the harness calculated by said  
20 control circuit to said external terminal.
4. The estimation system for harness processing according to  
claim 3, wherein:  
said external terminal to which the estimation result is sent is a  
specific terminal; and  
25 said control circuit confirms that said external terminal is the

specific terminal until at least before the estimation result is sent to said external terminal, and then sends the estimation result to said external terminal via said communication unit.

5        5.    The estimation system for harness processing according to claim 1, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

10       6.    The estimation system for harness processing according to claim 2, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

15       7.    The estimation system for harness processing according to claim 3, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

8.    The estimation system for harness processing according to claim 4, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

20       9.    The estimation system for harness processing according to claim 1, comprising an output unit which outputs information, wherein said control circuit performs:

a1) a step of acquiring the processing condition for the harness which is designated from said input unit;

25       b1) a step of storing the designated processing condition in said

storage unit,

c1) a step of reading out the designated processing condition  
from said storage unit,

d1) a step of reading out the estimation function from said

5 storage unit,

e1) a step of calculating the unit component price of the harness  
that corresponds to the designated processing condition, based on the  
read-out estimation function and a content of the designated  
processing condition,

10 f1) a step of storing the calculated unit component price in said  
storage unit,

g1) a step of reading out the unit component price from said  
storage unit, and

h1) a step of outputting the read-out unit component price via  
15 said output unit.

10. The estimation system for harness processing according to  
claim 1, wherein the estimation function stored in said storage unit is  
an operation time estimation function for calculating, based on the  
processing condition, an instrument operation time of each process  
20 step for processing the harness by using a harness processing  
instrument.

11. The estimation system for harness processing according to  
claim 10, wherein said control circuit performs:

a2) a step of acquiring the processing condition designated for  
25 each process step via said input unit,

b2) a step of storing the designated processing condition in said storage unit,

c2) a step of reading out the designated processing condition from said storage unit,

5 d2) a step of reading out the operation time estimation function from said storage unit,

e2) a step of calculating the instrument operation time of each process step based on the read-out operation time estimation function and the designated processing condition, and

10 f2) a step of storing the calculated instrument operation time of each process step in said storage unit.

12. The estimation system for harness processing according to claim 11, wherein:

said storage unit stores an operation cost estimation function for  
15 calculating, based on the instrument operation time, an instrument operation cost that is required for processing the harness using the harness processing instrument; and

said control circuit performs

a3) a step of reading out the calculated instrument operation time  
20 of each process step from said storage unit,

b3) a step of reading out the operation cost estimation function from said storage unit,

c3) a step of calculating the instrument operation cost of each process step based on the read-out instrument operation time of each  
25 process step and the operation cost estimation function, and

d3) a step of storing the calculated instrument operation cost of each process step in said storage unit.

13. The estimation system for harness processing according to claim 12, wherein:

5       said storage unit stores a work time estimation function for calculating an instrument work time which is required for processing the harness using the harness processing instrument, based on the designated processing condition; and

      said control circuit performs

10       a4) a step of reading out the work time estimation function from said storage unit,

      b4) a step of calculating the instrument work time of each process step based on the read-out work time estimation function and the designated processing condition, and

15       c4) a step of storing the calculated instrument work time of each process step in said storage unit.

14. The estimation system for harness processing according to claim 13, wherein:

      said storage unit stores a labor cost estimation function for  
20       calculating, based on the instrument work time, an instrument labor cost that is required for processing the harness using the harness processing instrument; and

      said control circuit performs

      a5) a step of reading out the calculated instrument work time of  
25       each process step from said storage unit,

b5) a step of reading out the labor cost estimation function from said storage unit,

c5) a step of calculating the instrument labor cost of each process step based on the read-out instrument work time of each  
5 process step and the labor cost estimation function, and

d5) a step of storing the calculated instrument labor cost of each process step in said storage unit.

15. The estimation system for harness processing according to claim 14, wherein:

10 said storage unit stores a planning time estimation function for calculating, based on the designated processing condition, a planning time before processing the harness using the harness processing instrument; and

said control circuit performs

15 a6) a step of reading out the planning time estimation function from said storage unit,

b6) a step of calculating the planning time of each process step based on the read-out planning time estimation function and the designated processing condition, and

20 c6) a step of storing the calculated planning time of each processing step in said storage unit.

16. The estimation system for harness processing according to claim 15, wherein:

said storage unit stores a planning cost estimation function for  
25 calculating, based on the planning time, a planning cost required for

processing the harness using the harness processing instrument; and

said control circuit performs

a7) a step of reading out the calculated planning time of each process step from said storage unit,

5        b7) a step of reading out the planning cost estimation function from said storage unit,

c7) a step of calculating the planning cost of each process step based on the read-out planning time of each process step and the planning cost estimation function, and

10       d7) a step of storing the calculated planning cost of each process step in said storage unit.

17. The estimation system for harness processing according to claim 16, wherein said control circuit performs:

a8) a step of reading out the calculated instrument operation cost, instrument labor cost, and planning cost of each process step from  
15       said storage unit,

b8) a step of calculating a processing cost required for processing the harness using the harness processing instrument, by adding up the read-out instrument operation cost, instrument labor  
20       cost, and planning cost, and

c8) a step of storing the calculated processing cost in said storage unit.

18. The estimation system for harness processing according to claim 17, comprising an output unit which outputs information,

25       wherein said control circuit performs:

a9) a step of reading out the calculated processing cost from said storage unit, and

b9) a step of outputting the read-out processing cost via said output unit.

5        19. The estimation system for harness processing according to claim 18, wherein said control circuit performs:

a10) a step of reading out the calculated instrument operation time, instrument work time, and planning time from said storage unit, and

10        b10) a step of outputting the read-out instrument operation time, instrument work time, and planning time via said output unit.

20. An estimation system comprising: a storage unit which stores information; an input unit which receives input of information; and a control circuit which controls operations of said storage unit  
15 and input unit,

wherein:

said storage unit stores a component database associating a quantity of child components necessary for manufacturing each harness and a unit child component price of the child components  
20 with identification information of each harness, and also stores a material cost estimation function for calculating a material cost of each harness by inputting thereto, the quantity and the unit child component price; and

said control circuit performs

25        a11) a step of acquiring identification information of a harness



for which estimation is to be made via said input unit,

b11) a step of reading out the quantity and the unit child component price associated with the acquired identification information of the harness from the component database in said

5 storage unit,

c11) a step of reading out the material cost estimation function from said storage unit,

d11) a step of calculating the material cost of the harness corresponding to the acquired identification information, based on  
10 the read-out material cost estimation function and the read-out quantity of child components and unit child component price, and

e11) a step of storing the calculated material cost in said storage unit.

21. The estimation system according to claim 20, comprising  
15 an output unit which outputs information,

wherein said control circuit performs

a12) a step of creating a component screen displaying the read-out quantity of child components and unit child component price, and outputting the created component screen via said output  
20 unit,

b12) a step of acquiring a change of the quantity of child components and/or unit child component price displayed on the component screen, via said input unit, and

c12) a step of calculating the material cost of the harness based  
25 on the changed quantity and unit child component price and the

material cost estimation function.

22. An estimation method for harness processing, wherein in a system comprising: a storage unit which is constituted by a memory medium or memory elements, and which stores an estimation  
5 function for calculating an estimation of a harness based on a designated processing condition for processing the harness; a control circuit; and an input unit which receives input of information;

said estimation method causes said control circuit to calculate the estimation of the harness based on the estimation function read out  
10 from said storage unit and the processing condition designated from said input unit.

23. The estimation method for harness processing according to claim 22, wherein:

a communication unit is provided to said system; and  
15 said estimation method causes said communication unit to receive the estimation function and store the received estimation function in said storage unit.

24. The estimation method for harness processing according to claim 23, wherein:

20 a communication unit is provided to said input unit; and  
said estimation method causes said communication unit to receive the processing condition from an external terminal, provide the received processing condition to said control circuit, and send an estimation result for the harness calculated by said control circuit to  
25 said external terminal.

25. A program, wherein in a system comprising: a storage unit which is constituted by a memory medium or memory elements, and which stores an estimation function for calculating an estimation of a harness based on a designated processing condition for processing  
5 the harness; and an input unit which receives input of information; and a control circuit, said program controls said control circuit to perform an operation of calculating the estimation of the harness based on the estimation function read out from said storage unit and the processing condition designated from said input unit.

10 26. The program according to claim 25, wherein said system comprises a communication unit which receives the estimation function and stores the received estimation function in said storage unit.

27. The program according to claim 25, wherein the input unit  
15 comprises a communication unit which receives the processing condition from an external terminal, provides the received processing condition to said control circuit, and sends an estimation result for the harness calculated by said control circuit to said external terminal.

28. The program according to claim 27, wherein:  
20 said external terminal to which the estimation result is sent is a specific terminal; and

said program controls said control circuit to confirm that said external terminal is the specific terminal until at least before the estimation result is sent to said external terminal, and then send the  
25 estimation result to said external terminal via said communication

unit.

29. The program according to claim 25, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the  
5 harness.

30. The program according to claim 26, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

10 31. The program according to claim 27, wherein the estimation function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

32. The program according to claim 28, wherein the estimation  
15 function for the harness is a function for calculating a unit component price of the harness based on the processing condition for the harness.

33. The program according to claim 25, wherein:  
said system comprises an output unit which outputs information;  
20 and

said program controls said control circuit to perform

a1) a step of acquiring the processing condition for the harness which is designated from said input unit,

b1) a step of storing the designated processing condition in said  
25 storage unit,

c1) a step of reading out the designated processing condition from said storage unit,

d1) a step of reading out the estimation function from said storage unit,

5 e1) a step of calculating the unit component price of the harness that corresponds to the designated processing condition, based on the read-out estimation function and a content of the designated processing condition,

f1) a step of storing the calculated unit component price in said  
10 storage unit,

g1) a step of reading out the unit component price from said storage unit, and

h1) a step of outputting the read-out unit component price via said output unit.

15 34. The program according to claim 25, wherein the estimation function stored in said storage unit is an operation time estimation function for calculating, based on the processing condition, an instrument operation time of each process step for processing the harness during which a harness processing instrument is operated.

20 35. The program according to claim 34, controlling said control circuit to perform:

a2) a step of acquiring the processing condition designated for each process step via said input unit,

b2) a step of storing the designated processing condition in said  
25 storage unit,

c2) a step of reading out the designated processing condition from said storage unit,

d2) a step of reading out the operation time estimation function from said storage unit,

5 e2) a step of calculating the instrument operation time of each process step based on the read-out operation time estimation function and the designated processing condition, and

f2) a step of storing the calculated instrument operation time of each process step in said storage unit.

10 36. The program according to claim 35, wherein:

said storage unit stores an operation cost estimation function for calculating, based on the instrument operation time, an instrument operation cost that is required for processing the harness using the harness processing instrument; and

15 said program controls said control circuit to perform

a3) a step of reading out the calculated instrument operation time of each process step from said storage unit,

b3) a step of reading out the operation cost estimation function from said storage unit,

20 c3) a step of calculating the instrument operation cost of each process step based on the read-out instrument operation time of each process step and the operation cost estimation function, and

d3) a step of storing the calculated instrument operation cost of each process step in said storage unit.

25 37. The program according to claim 36, wherein:

said storage unit stores a work time estimation function for calculating an instrument work time which is required for processing the harness using the harness processing instrument, based on the designated processing condition; and

5       said program controls said control circuit to perform

a4) a step of reading out the work time estimation function from said storage unit,

b4) a step of calculating the instrument work time of each process step based on the read-out work time estimation function and

10   the designated processing condition, and

c4) a step of storing the calculated instrument work time of each process step in said storage unit.

38. The program according to claim 37, wherein:

said storage unit stores a labor cost estimation function for  
15   calculating, based on the instrument work time, an instrument labor cost that is required for processing the harness using the harness processing instrument; and

said program controls said control circuit to perform

a5) a step of reading out the calculated instrument work time of  
20   each process step from said storage unit,

b5) a step of reading out the labor cost estimation function from said storage unit,

c5) a step of calculating the instrument labor cost of each process step based on the read-out instrument work time of each  
25   process step and the labor cost estimation function, and

d5) a step of storing the calculated instrument labor cost of each process step in said storage unit.

39. The program according to claim 38, wherein:

said storage unit stores a planning time estimation function for  
5 calculating, based on the designated processing condition, a planning time before processing the harness using the harness processing instrument; and

said program controls said control circuit to perform

a6) a step of reading out the planning time estimation function  
10 from said storage unit,

b6) a step of calculating the planning time of each process step based on the read-out planning time estimation function and the designated processing condition, and

c6) a step of storing the calculated planning time of each  
15 processing step in said storage unit.

40. The program according to claim 39, wherein:

said storage unit stores a planning cost estimation function for calculating, based on the planning time, a planning cost required for processing the harness using the harness processing instrument; and

20 said program controls said control circuit to perform

a7) a step of reading out the calculated planning time of each process step from said storage unit,

b7) a step of reading out the planning cost estimation function from said storage unit,

25 c7) a step of calculating the planning cost of each process step



based on the read-out planning time of each process step and the planning cost estimation function, and

d7) a step of storing the calculated planning cost of each process step in said storage unit.

5        41. The program according to claim 40, controlling said control circuit to perform:

a8) a step of reading out the calculated instrument operation cost, instrument labor cost, and planning cost of each process step from said storage unit;

10       b8) a step of calculating a processing cost required for processing the harness using the harness processing instrument, by adding up the read-out instrument operation cost, instrument labor cost, and planning cost; and

c8) a step of storing the calculated processing cost in said  
15 storage unit.

42. The program according to claim 41, wherein:

said system comprises an output unit which outputs information;  
and

said program controls said control circuit to perform

20       a9) a step of reading out the calculated processing cost from said storage unit, and

b9) a step of outputting the read-out processing cost via said output unit.

43. The program according to claim 42, controlling said  
25 control circuit to perform:

a10) a step of reading out the calculated instrument operation time, instrument work time, and planning time from said storage unit;  
and

b10) a step of outputting the read-out instrument operation time,  
s instrument work time, and planning time via said output unit.